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(54) Door- or window casing and a process for its manufacture

(57) An extruded casing of thermoplastics material is intended to be fastened to a support by pressing a gripping means 6 arranged on a main part of the casing into a groove or recess in the support. The casing enables the achievement of improved properties with respect to appearance and sound absorption since the main part of the casing is made of foamed thermoplastics material while the gripping means is made of a stiffer thermoplastics material than the main part. The material of the main part can contain e.g. wood flour as a filler. Furthermore, the material of the gripping means can be made stiffer than the material of the main part by not being foamed. The casing can be manufactured by co-extrusion of the two materials and is particularly suitable for use as a casing in doors and windows.

FIG.3

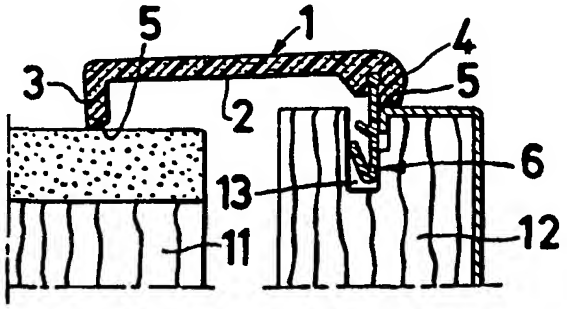

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FIG.1

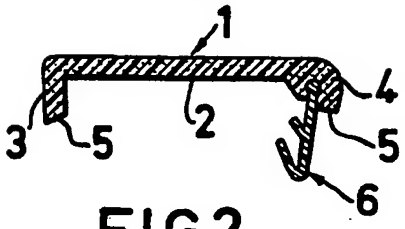


FIG.2

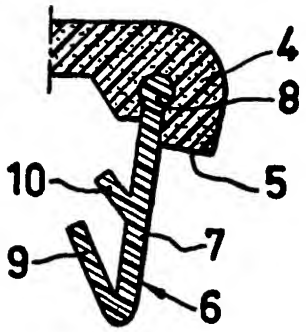


FIG.3

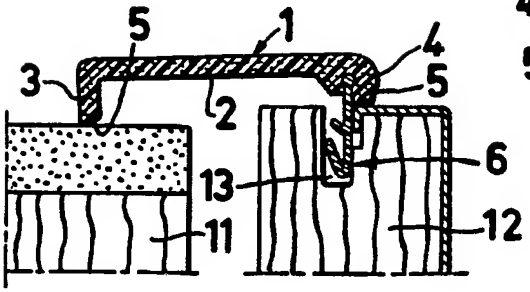


FIG.4

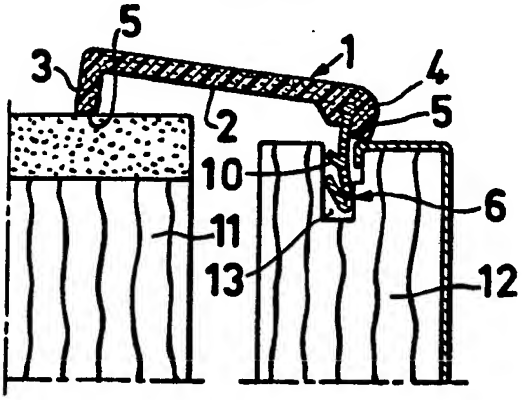


FIG.5

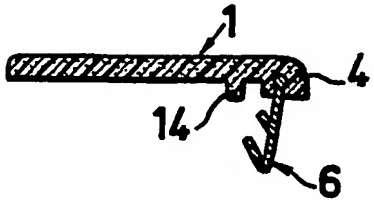


FIG.6

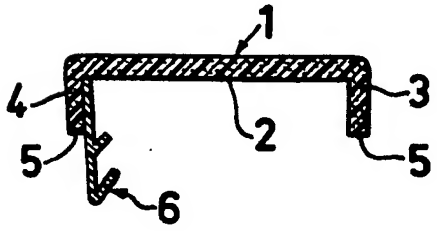
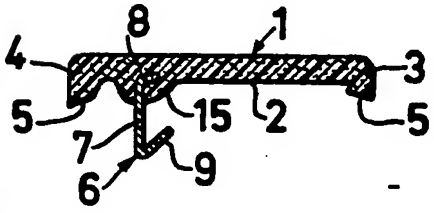


FIG.7



SPECIFICATION

Door- or window casing and a process for its manufacture

The present invention relates to an extruded casing of thermoplastics materials, said casing being of the kind that is intended to be fastened to a support by pressing gripping means arranged on the casing into a groove in the support surface. The invention further relates to a method for the manufacture of such a casing by extrusion.

Mouldings which are fastened by pressing into grooves in a support are now widely used in building projects. Compared with strips which e.g. are fastened by nailing they offer a considerably simpler and faster mounting, and also dismounting if replacement is necessary. The strip is also spared the risk of being damaged at the mounting which reduces cassation and also reduces requirements on subsequent treatment. However, for fastening into the groove of the support a tap or other gripping means of sufficient stiffness as well as sufficient elasticity is required in order to permit both a simple insertion and a secure fixing after the insertion. Wood, which is the traditional material for mouldings, lacks suitable elasticity properties for this purpose and strips intended to be fastened by pressing are thus generally made of thermoplastics which, besides suitable elasticity and strength properties, are also advantageous in that they can be shaped and produced in any desired lengths by extrusion. The use of plastics materials involves disadvantages, however. Thus, the materials have an appearance and a structure which sometimes makes it difficult to combine the strips with other building materials such as wood. At minor plays plastics materials cause more noise and rattling than corresponding wood-based products and slight plays are more frequent when pressing is used as a method of fastening than when nailing is used. These problems are particularly annoying when the strips are to be used as casings in doors and windows (for one thing because there they are subjected to frequent blows, hits and vibration).

According to the present invention the casing comprises a main part formed of foamed thermoplastics material and, attached thereto, a gripping means formed of a thermoplastics material stiffer than that of the main part.

By forming the main part of the casing of foamed thermoplastics material a number of advantages are obtained. The casing will be softer than when un-foamed material is used and this means that it more easily adapts itself to the surface, which *per se* means that the casing gives an improved sealing and practically eliminates rattling. The gas inclusions of the foamed material are strongly sound adsorptive and possible sound and vibrations are thus efficiently absorbed by the casing itself. According to a particularly preferred embodiment, the plastics material contains a filler, especially wood flour, which reduces some negative effects in fires, further improves the sound absorption and makes adaptation of the appearance of the plastics casing to that of other building materials possible, particular with respect to different wooden materials by conferring on it an appearance similar to that of wood.

By using another material for the gripping means of the casing and by selecting this from thermoplastics stiffer than the material of the main part of the casing, several advantages are also gained. The gripping means has suitable elasticity and stiffness properties for fastening in grooves. The thermoplastics material of the gripping means makes it possible to produce the two parts of the casing together by simultaneous extrusion and fixing of the two parts together can be achieved by fusing them together. According to a particularly preferred embodiment, the gripping means is formed of the same plastics material as the main part of the casing but is made stiffer by being less foamed or not foamed at all. By this means production is further facilitated; ease of melting between the parts and subsequent durability is increased by the similar physical and chemical properties.

According to a particularly preferred embodiment, the main part of the casing is provided with a groove or recess and the gripping means extends from the groove or recess out from the main part of the casing. This design improves fixing between the parts, material consumption for the gripping means is reduced and production is simplified as the groove or recess forms a mould in which the material of the gripping means can easily be moulded.

A suitable method for the production of a casing according to the present invention is extrusion of the product by co-extruding the parts of the casing of different materials. By co-extrusion the entire product can be produced in one working step and mutual fixing of the parts by melting can automatically be obtained by the melting and setting phases comprised within the extrusion process. In order to obtain a uniform composition of the material in each part of the casing and to avoid stresses in the finished product the material of the gripping means is suitably fed from the die at a higher speed than the material of the main part of the casing, whereby, among other things, compensation can be made for differences in expansion of the parts.

As has been mentioned, the main part of the casing should be made of foamed thermoplastics material. Many thermoplastics materials have properties suitable for a casing

according to the present invention, e.g. polyethylene or ABS-plastic. Polyvinyl chloride has been found to have particularly suitable properties for the present purpose, especially rigid polyvinyl chloride which is entirely free from added plasticizer. Mixtures of different thermoplastics can of course be used if so desired. The thermoplastics material may be foamed in a known manner by the addition of a substance which is gasified at pressure release or at an elevated temperature, such as e.g. azodicarbonamide. A suitable degree of expansion of the plastic is a volume increase of between 1.25 and 5 times the unexpanded volume, preferably between 1.5 and 3.5 times the unexpanded volume. It is preferred to mix the plastic with a filler in order to get advantageous effects with appearance and sound absorption properties (among other things). A number of known organic and inorganic fillers can be used, e.g. pigment. A particularly preferred filler for the above-stated purposes is wood flour. 1 to 40 per cent by weight is a suitable filler content, and the content is preferably 2 to 20 per cent by weight.

The gripping means are also made of thermoplastics material but they are made of a stiffer material than that which is used in the main part of the casing in order to get suitable elasticity and strength so that the gripping means, by pressing against the walls of a groove in the support surface, can fasten the casing to the support. Suitable thermoplastics materials are the same as have been mentioned as suitable for the main part of the casing, polyvinyl chloride being also preferred for the gripping means, especially rigid polyvinyl chloride as mentioned above. It is preferred, but not necessary, that the same plastics material be used for both the main part and the gripping means or that these components at least contain the same plastics material. Increased stiffness of the gripping means can be achieved by selecting a filler which gives an increased stiffness, by a lower degree of foaming or by a combination of these steps. It is preferred that increased stiffness be achieved by a lower degree of foaming and the material of the gripping means is preferably not foamed at all. It is further preferred that the filler content is low and preferably no filler is used. Un-foamed and un-filled polyvinyl chloride has thus been found to function satisfactorily.

The thermoplastics material of both the casing and its gripping means can of course contain known additives such as pigments, stabilizers etc.

The design of the main part of the casing is dependent on the intended use of the casing, and, as many fields of application can be considered, the shape can vary in many ways which *per se* are previously known for strips. After mounting, the casing as a rule has a permanent outwardly turned surface and a surface permanently turned towards the support surface. The space between the outwardly turned surface and the support can be totally filled with the material of the main part of the casing to give a solid casing. Alternatively, the outwardly turned surface can be a shell leaving a space between this part and the support. A design of this kind for the main part of the casing is preferred as material consumption and weight are then reduced. The use of thermoplastics materials permits a design of this kind without neglecting demands on strength and without making the production process more difficult. Noise problems can increase when the casing is made less solid but this is efficiently compensated for in the present case as the casing of the invention has good sound absorption properties. The space between the shell and the support is preferably empty but can for certain purposes be filled with a material other than of the shell, e.g. a special sound absorptive or thermal insulation material. A design of a shell-formed casing of this kind suitable for many purposes is an essentially U-shaped profile, whereby the legs of the U-profile are intended to bear against the support while the bottom is turned outwards. In order to get good contact of the outwardly turned surfaces of the legs against the support with such a profile (regardless of minor variations in the support surface) it is appropriate to bevel the contact surfaces of the legs to the support to make them incline somewhat towards the bottom of the profile. In a shell-construction of this profile, the gripping means is/are preferably joined to one of the legs. For special purposes, the gripping means can also be joined to the bottom of the profile and the second leg of the profile can also be provided with gripping means. It is then preferred to increase the thickness of the material somewhat at the join. For solid casings the gripping means can be positioned more freely but a positioning at one side is also preferred in these cases. It is preferred that the profile, independently of the design of the main part of the casing, has a constant cross section over its length in order to make production by extrusion as easy as possible.

The design of the gripping means is determined by its function as fastening means to the support. In general, it is not possible to expect suitable elasticity properties in the support but the gripping means should have suitable elasticity and stiffness properties in order that it, after moderate deformation when the pressed into the groove, will exert a pressure on the walls of the groove and thereby contribute to the fastening. It is also possible that the groove can have a widened area at the bottom thereof where the lower part of the gripping means can expand and grasp the upper part of the widened area. It

is, however, also required in this case that the gripping means be flexible to make the actual insertion possible.

The gripping means can be designed in several ways, e.g. with one part of even thickness, having a width somewhat larger than the width of the groove in the support, which part is inserted in the groove. It is however preferred that the gripping means be designed with a stem considerably narrower than the width of the groove, which stem has protruding branches on one or both sides thereof so that the entire width of the gripping means is somewhat larger than the width of the groove. The branches are suitably inclined somewhat backwards towards the main part of the casing so that they, like barbs, permit simple insertion of the gripping means but require a greater force to be exerted when this is pulled out. A suitable way of providing a barb of this type is to make the end of the stem fold backwards in the direction of the main part of the casing to form a kind of hook. The stem can optionally also be provided with one or several additional branches. The ends of the branches should have sharp edges to function satisfactorily as barbs. The width of the grooves in the support can vary within wide limits, e.g. they can be between 1 and 10 mm, but are usually between 2 and 6 mm. The width of the stem should be between 10 and 60 per cent of the width of the groove, preferably between 20 and 40 per cent, and should in absolute dimensions not be below 0.5 mm and not exceed 5 mm. The entire width of the gripping means should be between 1.05 and 1.5 times the width of the groove, preferably between 1.2 and 1.4 times the width of the groove. The length is determined by the depth of the groove but is preferably between 1 and 3 times the width of the groove, most preferably between 1.5 and 2.5 times the width of the groove.

The gripping means is preferably attached to the main portion of the casing by fusion or by mechanical joining into grooves in the latter. Fixing by melting can be achieved on a plane surface of the main part of the casing, e.g. on a part in contact with the support. Mechanical attachment should be carried out by designing the gripping means and the main part with a groove and tap, preferably the main part being designed with a groove wherein the gripping means extends from the interior and outwards. The inner part of the groove should be enlarged or bent and the gripping means designed corresponding thereto to give improved mechanical attachment. The groove should be designed so that the gripping means cannot turn therein (which can be achieved by a suitable design of the inner part of the groove or by making this sufficiently deep so that it will support the gripping means along a substantial length). It is preferred to combine fusion and mechanical attachment for fixing in such a manner that a design with grooves according to the above is utilized at the same time as provision is made for melting during moulding plastics material into the groove. Satisfactory fixing, good resilience and a reduced tendency to play between the parts is thereby obtained. If the gripping means is displaced towards the side of the main part of the casing it is suitably directed so as to protrude slightly slanting towards the middle of the strip so that after insertion in a groove, which is at right angles to the support, a torsional moment arises which makes the other side of the casing bear on the support with a degree of pressure. When the gripping means is positioned further towards the middle of the main part of the casing, the means should be positioned more at right angles to the main part of the casing and to the support.

The casing of the invention is adapted to the manufactured by extrusion and as it comprises two different materials it is preferred to co-extrude these to form the finished product. At least two different dies for the two materials are employed thereby. It is of course also possible to employ additional dies if further materials are involved, such as e.g. cover or insulation material. If, as is preferred, the gripping means is made stiffer than the material of the main portion by not being foamed or foamed to a lower degree, the two materials will perform differently in the context of the extrusion. The material of the main part will expand more than that of the gripping means after extrusion and this means that relative movement between the materials during some part of the production process cannot be avoided. The foamed material will swell both in axial direction, parallel to the extrusion direction, and in the radial directions, at right angles to the extrusion. In the axial direction it is possible to choose, during production, between extrusion of the material of the gripping means at a speed, when it leaves the die, which is slower than that of the finished strand and e.g. the same as the speed of the material of the main part when this leaves the die (which means that the material of the gripping means will be stretched during the expansion) and extrusion at speed, when it leaves the die, exceeding or the same as that of the main part when this is expanded (which means that the two materials have different speeds after having left the dies). It is preferred that the material of the gripping means be extruded at a speed which at least corresponds to that of the material of the main part after expansion as this gives a minimum of influence on the shape of the gripping means, it being easy to calibrate the material of the main part to the right shape in a subsequent calibrating instrument and relative movements during the first stage after the extrusion not causing any great harm (on the

contrary, they can make fusion between the parts somewhat more efficient). It is further preferred that the speed of the material for the gripping means be somewhat greater than the one mentioned above when it leaves the die, and preferably between 1 and 10 per cent above this speed in order further to enhance these effects and compensate for the thickness of apparatus material between the dies, for filling the space which is formed between the dies near the contact area. The material of the main part will also expand faster than that of the gripping means in the radial direction, at right angles to the extrusion direction. In the contact area between the two parts, the material of the gripping means will thus tend to be stretched, which can often be tolerated if the material fed for the gripping means is made to endure the stretching, e.g. by a sufficient thickness of the extruded part or by an increased feeding velocity for the material of this part. It is, however, preferred that stretching in the radial direction be limited in some way and suitably so that the contact area between the parts has about the same appearance and size in the finished product as immediately after extrusion. This is suitably achieved by an efficient fusion of the parts immediately after the extrusion. It is also preferred that a calibrating tool is used, which tool is designed in such a manner that the region at the contact surface between the parts is compressed or fixed in the instrument to a shape essentially corresponding to the shape as it is when the materials leave the extruder. A certain excess of material feed to the gripping means in the region of the contact area, preferably as a velocity surplus of between 1 and 10 per cent is suitable, even if expansion in this area is limited. Such a surplus is suitably limited to the contact area in order to improve the mutual contact between the parts without influencing the supply of material for the other parts of the gripping means. It is preferred that the extrusion is carried out at such a temperature and with such a feed speed, e.g. with an excess as above, that melting takes place as early as possible since this both improves the fixing and limits the above-mentioned stretching of the material of the gripping means as has been indicated above. Early contact at a high temperature can in a conventional extruder be obtained by moving the last part of the wall between the two dies so that the materials are brought into contact with each other before they entirely leave the forming apparatus, whereby they are contacted at a higher temperature than they otherwise would be. In other respects the manufacture may be carried out according to customary extrusion technology, e.g. at a temperature of about 180°C for polyvinyl chloride and at a production speed of e.g. between 1 and 20 meters of product per minute or preferably between 5 and 10 meters per minute.

Thus, the invention provides a method for the manufacture of a casing of the invention comprising an extrusion process wherein the main part of the casing is extruded in a manner known per se from a first die to which a thermoplastics material with added foaming agent is fed and, substantially simultaneously with the extrusion of the main part, the gripping means is extruded from a second die to which is fed a thermoplastics material which is stiffer than the thermoplastics material fed to the first die (when compared in the solidified state).

From what has been said above, it may be concluded that suitable equipment for the manufacture of the product of the invention usually comprises a conventional extruder for thermoplastics materials with the conveyance and heating means supplemented with corresponding means for a second thermoplastics material, an extruder head for substantially parallel conveyance of the two materials, an apparatus for forming of the materials and a calibrating instrument arranged at some distance from the apparatus for final shaping of the extruded product. There is preferably a space of between 1 and 20 cm, more preferably between 2 and 10 cm, between the forming apparatus and the calibrating instrument, in which space expansion of the foamed plastic can take place. The forming apparatus suitably comprises at least two dies for the two materials, between which there is a partition wall in the area of the subsequent contact surface of the materials. The partition wall is, as has been mentioned, preferably shorter than the apparatus itself so that the materials are brought into contact with each other before they leave the apparatus. The apparatus is further suitably designed to feed the material of the gripping means at a greater speed near the contact area than at other parts, e.g. by making the die wall for this entire area of the gripping means shortened, as mentioned above, and then preferably slanting in the direction towards the end of the apparatus for the other parts of the gripping means. The calibrating tool is preferably, as mentioned above, designed to give a fine adjustment of the shape of the casing as it is formed after free expansion, except for the region around the contact area where the calibrating instrument contributes to limitation of changes in the contact area due to expansion.

It will thus be appreciated that the invention includes apparatus intended or adapted for the performance of a method of the invention and comprising an extruder having conveying means and heating means for each of the two thermoplastics materials, an extruder head for substantially parallel conveyance of said materials and forming apparatus for forming the extruded product.

The casing of the invention may be used in a manner customary for this type of casing. After cutting a suitable length of the extruded casing, this is pressed into the groove provided for this purpose in the support. Generally, the casing is held to the support by this means only, but there is nothing to prevent the use of other means for attachment, e.g. nailing or gluing. It is primarily intended that the casing, during production, be given a finish which makes after-treatment on the spot unnecessary. Such a finish is generally easily obtained with the materials used, the fillers and production methods. There is, however, nothing to prevent optional further treatment after mounting of the casing such as polishing and painting. The casing of the invention is suitable for use whenever the support and application so permit. The casing of the invention is particularly suitable for use in connection with buildings (especially as a casing for windows and particularly for doors—door frames are often produced with a groove of standardized type and the casing of the invention can advantageously be used for such frames).

The invention will now be further described and illustrated by reference to the accompanying drawings, in which:—

Figure 1 is a cross-sectional view of a preferred embodiment of the invention;

Figure 2 is an enlargement of that part of the casing of Fig. 1 which constitutes the gripping means and its joint to the main part;

Figure 3 shows the casing of Fig. 1 inserted between a wall and a door frame;

Figure 4 shows the same view as Fig. 3 but with another type of fitting between the wall and door frame;

Figure 5 is cross-sectional view of another embodiment of the invention;

Figure 6 is a cross-sectional view of yet a further embodiment of the invention; and

Figure 7 is a cross-sectional view of a still further embodiment of the invention.

In the different Figures of the accompanying drawings the same reference numbers have been used throughout for corresponding parts.

In Fig. 1 is shown a casing with a main part 1 which is U-shaped and has an essentially plane bottom 2 and two legs 3 and 4. The legs 3 and 4 have end-surfaces 5 which are bevelled. A gripping means 6 is fixed in the leg 4 so that it points towards the middle of the casing. As is best evident from Fig. 2, the gripping means 6 comprises an essentially straight stem 7 which, at its end in leg 4, is enlarged to form a retaining part 8 for the gripping means (which part 8 in this embodiment has an essentially circular cross-section). The part 8 fits into a corresponding recess in the leg 4 and the parts are fused at the contact surface of the materials. The part 8 is positioned in such a manner that leg 4 encompasses a part of stem 7 so that rotation of gripping means 6 around part 8 is prevented. The stem 7 is, at the end thereof remote from leg 4, folded backwards to form a hook-shaped barb 9 and stem 7 is further provided with an additional backwardly turned branch or barb 10. The ends of the barbs 9 and 10 are squarely cut to form sharp and strong edges for efficient engagement in a groove of a support. The barb-shaped branch 10 further serves as a spacer for orientation of stem 7 of gripping means 6 essentially straight in such a groove.

Fig. 3 shows the casing of Fig. 1 inserted between a wall 11 and a door frame 12 with gripping means 6 inserted in a groove 13. The legs 3 and 4 are in contact with the support constituted by wall 11 and frame 12 and their bevelled end-surfaces 5 secure contact between the outer parts of the end-surfaces and the support.

In Fig. 4 another relative position between wall 11 and door frame 12 is shown. In this case the bevelled end-surfaces 5 secure linear contact between the outer parts of the legs 3 and 4 and the support. In this position of the casing with respect to the support, the gripping means 6 will be more bent than in the position shown in Fig. 3, but branch 10 contributes to giving gripping means 6 an essentially straight position in groove 13 despite this.

In Fig. 5 an alternative embodiment of the invention is shown in which the casing has only one leg 4 but is provided with a ridge 14 for contact with a particularly designed support. The gripping means 6 and its joint to leg 4 have the same design as in Figs. 1 to 4.

A further embodiment of the invention is shown in Fig. 6 in which the casing has a main part 1 with a U-shaped cross-section. The gripping means does not have a specially designed retaining part at its end nearest the main part 1 of the casing, being fixed to the inner side of the leg 4 solely by fusion across a plane surface. Otherwise, gripping means 6 in this embodiment is designed as in Figs. 1 to 4.

In Fig. 7 is shown an embodiment wherein the gripping means 6 is not joined to either of the legs 3 or 4 of the U-shaped main part 1, but, instead, has a more central position at the bottom of the profile of the casing. The stem 7 of the gripping means 6 is provided with a retaining part 8 at the end thereof fixed to the main part 1, the retaining part 8 in this case being designed as a fold-back of stem 7. This part 8 and part of stem 7 are inserted and fused within an enlarged part 15 of the bottom 2. The gripping means 6 has a hook-shaped barb 9 but lacks further branches as the beding forces on the gripping means 6 are smaller with this position of the joint between main part 1 and gripping means 6.

The invention is not of course limited to the

embodiments discussed above but is capable of wide variation as the skilled man will appreciate.

Included as part of the disclosure of the present application are the entire contents of Swedish Patent Application No. 7811543-3 from which priority is claimed, a certified copy and English translation of which Swedish Application is filed herewith.

CLAIMS

1. An extruded casing of thermoplastics material for fastening to a groove or recess in a support, which casing comprises a main part formed of foamed thermoplastics material and a gripping means for pressing into the support groove or recess to fasten the casing thereto, which gripping means is formed of a stiffer thermoplastics material than the main part and is fixed to the main part by fusion and/or mechanical joining.

2. A casing as claimed in claim 1, wherein the main part of the casing is provided with a groove or recess and the gripping means extends from the groove or recess out from the main part of the casing, the main part and the gripping means being mechanically joined.

3. A casing as claimed in claim 2, wherein the main part and the gripping means are also joined by fusion.

4. A casing as claimed in any one of claims 1 to 3, wherein the gripping means comprises a stem having thereon at least one barb for engaging in and exerting a pressure on the walls of the groove or recess in the support.

5. A casing as claimed in claim 4, wherein the gripping means is provided with a plurality of barbs formed in one piece with the remainder of the gripping means.

6. A casing as claimed in any one of claims 1 to 5, wherein the gripping means has a shaped retaining part at an end thereof for fixing the gripping means to the main part.

7. A casing as claimed in claim 6, wherein the gripping means has a main stem terminating at one end in a retaining part of substantially circular cross-section, part of the stem and the whole of the retaining means being positioned within a corresponding by-shaped recess in the main part.

8. A casing as claimed in any one of claims 1 to 7, wherein the main part has one or more legs adapted to abut the support when the casing is in use.

9. A casing as claimed in claim 8, wherein the gripping means is fixed to one of said one or more legs.

10. A casing as claimed in claim 8 or claim 9, wherein each of said one or more legs is bevelled at an end thereof which, in use, abuts the support.

11. A casing as claimed in any one of claims 8 to 10, wherein the main part has two legs spaced apart.

12. A casing as claimed in claim 11, wherein the main part has an essentially U-shaped cross-section, the arms of the "U" constituting said legs.

13. A casing as claimed in any one of claims 1 to 8, or in any one of claims 10 to 12 other than when directly or indirectly dependent upon claim 9, wherein the gripping means is fixed to the main part at a middle section thereof.

14. A casing as claimed in any one of claims 1 to 13, wherein the gripping means is formed of the same thermoplastics material as the main part, the material of the gripping means being stiffer as a consequence of being less foamed than the material of the main part or not foamed at all.

15. A casing as claimed in any one of claims 1 to 14, wherein the material of the main part and/or of the gripping means comprises polyethylene, ABS-plastic or polyvinyl chloride.

16. A casing as claimed in claim 15, wherein the foamed thermoplastics material of the main part comprises polyvinyl chloride with wood flour as a filler and the stiffer thermoplastics material of the gripping means comprises unfilled and unfoamed polyvinyl chloride.

17. An extruded casing substantially as hereinbefore described with reference to and as illustrated in Figs. 1 to 4, Fig. 5, Fig. 6 or Fig. 7 of the accompanying drawings.

18. A method for the manufacture of a casing as claimed in claim 1 comprising an extrusion process wherein the main part of the casing is extruded in a manner known per se from a first die to which a thermoplastics material with added foaming agent is fed and, substantially simultaneously with the extrusion of the main part, the gripping means is extruded from a second die to which is fed a thermoplastics material which is stiffer than the thermoplastics material fed to the first die (when compared in the solidified state).

19. A method as claimed in claim 18, wherein a larger volumetric amount of thermoplastics material per unit surface area of die is fed to the second die than is fed to the first die.

20. A method as claimed in claim 18 or claim 19, wherein material from the first die forms a main part with a groove or recess therein and part of the material from the second die is extruded into the groove or recess of the main part.

21. A method as claimed in claim 20, wherein the part of the gripping means which is extruded into the groove or recess of the main part is extruded at a larger volume amount of thermoplastics material per unit surface area of die than the material of the remainder of the gripping means.

22. A method as claimed in claim 18 and

substantially as hereinbefore described.

23. Apparatus intended or adapted for the performance of a method as claimed in claim 18 and comprising an extruder having conveying means and heating means for each of the two thermoplastics materials, an extruder head for substantially parallel conveyance of said materials and forming apparatus for forming the extruded product.

24. Apparatus as claimed in claim 23 also comprising calibrating means for final shaping of the extruded product.

25. Apparatus as claimed in claim 23 or claim 24, wherein the forming apparatus comprises at least two dies separated by a partition wall which is shorter than the length of the forming apparatus and positioned such that said materials are brought into contact with each other before leaving the forming apparatus.

26. Apparatus as claimed in any one of claims 23 to 25, wherein the forming apparatus is adapted to feed the material of the gripping means at a greater speed adjacent the eventual area of contact between the materials.

25. The use of a casing as claimed in any one of claims 1 to 17 in building construction.

26. The use of a casing as claimed in any one of claims 1 to 17 in a window or door frame.

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